Naval Education and Training Command

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Training Manual (TRAMAN) and Nonresident Training Course (NRTC)

Aerographer's Mate

Module 1—Surface Weather Observations

Only one answer sheet is included in the NRTC. Reproduce the required number of sheets you need or get answer sheets from your ESO or designated officer.

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Although the words “he,” “him,” and “his” are used sparingly in this manual to enhance communication, they are not intended to be gender driven nor to affront or discriminate against anyone reading this text.

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Naval Education and Training Professional Development and Technology Center

AEROGRAPHER'S MATE

MODULE 1—SURFACE WEATHER OBSERVATIONS

NAVEDTRA 12881

1999 Edition Prepared by
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PREFACE

This training manual (TRAMAN), *Aerographer's Mate, Module 1, Surface Weather Observations,* NAVEDTRA 12881, and its accompanying nonresident training course (NRTC), form self-study units that are designed for individual study. They can also be used for formal instruction. This TRAMAN is intended to prepare personnel to serve as Aerographer's Mates (AG), and its subject matter relates directly to the AG occupational standards (OCCSTDS).

Each chapter in this TRAMAN contains review questions and answers. The student should attempt to answer the questions before referring to the answers. Any questions that were answered incorrectly should be researched for thorough understanding. The questions in the TRAMAN chapters will help the student learn the information needed to successfully complete the NRTC assignments.

The NRTC assignments contain a series of questions intended to lead the student through a study of the TRAMAN, thus satisfying a requirement for advancement qualifications.

The TRAMAN must be ordered in accordance with instructions in the *Catalog of Nonresident Training Courses,* NAVEDTRA 12061.

This TRAMAN and NRTC were prepared by the Naval Education and Training Professional Development and Technology Center, Pensacola, Florida, for the Chief of Naval Education and Training.

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THE UNITED STATES NAVY

GUARDIAN OF OUR COUNTRY

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends; the United States Navy exists to make it so.

WE SERVE WITH HONOR

Tradition, valor, and victory are the Navy's heritage from the past. To these may be added dedication, discipline, and vigilance as the watchwords of the present and the future.

At home or on distant stations as we serve with pride, confident in the respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

THE FUTURE OF THE NAVY

The Navy will always employ new weapons, new techniques, and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war.

Mobility, surprise, dispersal, and offensive power are the keynotes of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past.

Never have our opportunities and our responsibilities been greater.

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SUMMARY OF THE AEROGRAPHER'S MATE TRAINING SERIES

The following modules of the AG training series are available:

AG MODULE 1, NAVEDTRA 12881, *Surface Weather Observations*

This module covers the basic procedures that are involved with conducting surface weather observations. It begins with a discussion of surface observation elements, followed by a description of primary and backup observation equipment that is used aboard ships and at shore stations. Module 1 also includes a complete explanation of how to record and encode surface METAR observations using WMO and NAVMETOCCOM guidelines. The module concludes with a description of WMO plotting models and procedures.

AG MODULE 2, NAVEDTRA 12882, *Miscellaneous Observations and Codes*

This module concentrates on the observation procedures, equipment, and codes associated with upper-air observations and bathythermograph observations. Module 2 also discusses aviation weather codes, such as TAFs and PIREPs, and includes a chapter on surf observation procedures. Radiological fallout and chemical contamination plotting procedures are also explained.

AG MODULE 3, NAVEDTRA 12883, *Environmental Satellites and Weather Radar*

This module describes the various type of environmental satellites, satellite imagery, and associated terminology. It also discusses satellite receiving equipment. In addition, Module 3 contains information on the Weather Surveillance Radar-1988 Doppler (WSR-88D). It includes a discussion of electromagnetic energy and radar propagation theory, and explains the basic principles of Doppler radar. The module also describes the configuration and operation of the WSR-88D, as well as WSR-88D products.

AG MODULE 4, NAVEDTRA 12884, *Environmental Communications and Administration*

This module covers several of the most widely used environmental communications systems within the METOC community. It also describes the software programs and products associated with these systems. The module concludes with a discussion of basic administration procedures.

NOTE

Additional modules of the AG training series are in development. Check the NETPDTC website for details at http://www.cnet.navy.mil/netpdtc/nac/neas.htm. For ordering information, check NAVEDTRA 12061, Catalog of Nonresident Training Courses, which is also available on the NETPDTC website.

SAFETY PRECAUTIONS

Safety is a paramount concern for all personnel. Many of the Naval Ship's Technical Manuals, manufacturer's technical manuals, and every Planned Maintenance System (PMS) maintenance requirement card (MRC) include safety precautions. Additionally, OPNAVINST 5100.19 *(series), Naval Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat,* and OPNAVINST 5100.23 *(series), NAVOSH Program Manual,* provide safety and occupational health information. The safety precautions are for your protection and to protect equipment.

During equipment operation and preventive or corrective maintenance, the procedures may call for personal protective equipment (PPE), such as goggles, gloves, safety shoes, hard hats, hearing protection, and respirators. When specified, your use of PPE is mandatory. You must select PPE appropriate for the job since the equipment is manufactured and approved for different levels of protection. If the procedure does not specify the PPE, and you aren't sure, ask your safety officer.

Most machinery, spaces, and tools requiring you to wear hearing protection are posted with hazardous noise signs or labels. Eye hazardous areas requiring you to wear goggles or safety glasses are also posted. In areas where corrosive chemicals are mixed or used, an emergency eyewash station must be installed.

All lubricating agents, oil, cleaning material, and chemicals used in maintenance and repair are hazardous materials. Examples of hazardous materials are gasoline, coal distillates, and asphalt. Gasoline contains a small amount of lead and other toxic compounds. Ingestion of gasoline can cause lead poisoning. Coal distillates, such as benzene or naphthalene in benzol, are suspected carcinogens. Avoid all skin contact and do not inhale the vapors and gases from these distillates. Asphalt contains components suspected of causing cancer. Anyone handling asphalt must be trained to handle it in a safe manner.

Hazardous materials require careful handling, storage, and disposal. PMS documentation provides hazard warnings or refers the maintenance man to the Hazardous Materials User's Guide. Material Safety Data Sheets (MSDS) also provide safety precautions for hazardous materials. All commands are required to have an MSDS for each hazardous material they have in their inventory. You must be familiar with the dangers associated with the hazardous materials you use in your work. Additional information is available from you command's *Hazardous Material Coordinator.* OPNAVINST 4110.2 (series), *Hazardous Material Control and Management,* contains detailed information on the hazardous material program.

Recent legislation and updated Navy directives implemented tighter constraints on environmental pollution and hazardous waste disposal. OPNAVINST 5090.1 (series), *Environmental and Natural Resources Program Manual,* provides detailed information. Your command must comply with federal, state, and local environmental regulations during any type of construction and demolition. Your supervisor will provide training on environmental compliance.

Cautions and warnings of potentially hazardous situations or conditions are highlighted, where needed, in each chapter of this TRAMAN. Remember to be safety conscious at all times.